

ABSTRACT OF THE DISCLOSURE

[0053] The invention generally teaches a method for depositing a silicon film or silicon germanium film on a substrate comprising placing the substrate within a process chamber and heating the substrate surface to a temperature in the range from about 600°C to about 900°C while maintaining a pressure in the range from about 0.1 Torr to about 200 Torr. A deposition gas is provided to the process chamber and includes SiH₄, an optional germanium source gas, an etchant, a carrier gas and optionally at least one dopant gas. The silicon film or the silicon germanium film is selectively and epitaxially grown on the substrate. One embodiment teaches a method for depositing a silicon-containing film with an inert gas as the carrier gas. Methods may include the fabrication of electronic devices utilizing selective silicon germanium epitaxial films.